



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/970,185	10/03/2001	Thomas Laursen	SFI 658C1	2268
27782	7590	03/26/2004		
SPEEDFAM-IPEC CORPORATION 305 NORTH 54TH STREET CHANDLER, AZ 85226				
			EXAMINER ROSE, ROBERT A	
			ART UNIT 3723	PAPER NUMBER 6
DATE MAILED: 03/26/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/970,185		LAURSEN ET AL.	
	Examiner		Art Unit	
	Robert Rose		3723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,11-15,21-23,25,27 and 28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25 is/are allowed.
- 6) ☒ Claim(s) 1-6,11-15,21-23,27 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 3723

DETAILED ACTION

1. Claims 7-10, 16-20, 24, and 26 have been canceled.
2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5, 11-12, 14, and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sandhu et al(US 5700180) in view of Bothra. Sandhu et al disclose an apparatus for planarizing a front surface of a wafer comprising substantially all of the subject matter set forth in applicant's claims above. Note the use of an interferometer(column 7, lines 35-45), which delivers reflected light signals back to a controller to adjust the polishing pressure on the backside of the wafer by way of plural individually controllable fluid-pressure piston actuators(column 6, lines 41-56). With regard to claim 14, note temperature probe embodiment of figure 10. While Sandhu et al('180) controls each of the actuators separately, the reference does not show individually controllable concentric plenums. However, Bothra discloses a wafer carrier comprising individually controllable concentric pressure plenums for adjusting the backside pressure across the wafer in annular regions radiating out from the center of the wafer. To utilize the pressure plenum/membrane arrangement disclosed in Bothra to radially adjust local pressure to compensate for uneven pressure due to edge effects(column 1, lines 63-65 of Bothra) in the apparatus of Sandhu et al would have been obvious in view of Bothra.

Art Unit: 3723

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sandhu et al in view of Bothra and further in view of Brievogel et al. To further substitute an orbital motion generator for the rotational motion generator disclosed in Sandhu et al in order to provide a more uniform polishing pad movement across the surface of the wafer(column 2, line 40 of Brievogel et al) would have been obvious in view of Brievogel et al.

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sandhu et al('180) in view of Bothra and further in view of Swedek et al(6190234). To use a second light source and detector for better endpoint precision would have been obvious in view of Swedek et al.

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sandhu et al('180) in view of Bothra and further in view of Li et al. Li et al discloses the conventional use of an eddy current sensor for monitoring the polishing state of the workpiece. To substitute such a sensor for the optical system of Sandhu et al to alternatively monitor the polishing state of the wafer would have been obvious in view of Li et al.

7. Claims 25, and 27-28 are allowed.

Applicant's arguments filed September 9, 2003 have been fully considered but they are not persuasive. Applicants new limitation of the carrier comprising "a plurality of concentric, independently pressurizable plenums" is deemed to be suggested by the secondary reference to Bothra. Bothra shows a wafer carrier having a central fluid chamber surrounded by concentric annular plenums, each individually controllable in pressure. The backside pressure can be locally controlled as in Sandhu et al, to adjust the polishing pressure in a desired region of the wafer. It is the examiner's view that those of ordinary skill in the art would have found it

Art Unit: 3723

obvious at the time of the invention, in view of Bothra, to have used concentric plenums to control the backside pressure, in order to uniformly adjust the pressure in a radial direction for specific annular zones across the wafer, in order to compensate for topographical variations.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

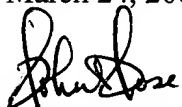
Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. Any inquiry concerning this communication should be directed to Robert Rose at telephone number (703) 308-1360.

rr

March 24, 2004.



ROBERT A. ROSE
PRIMARY EXAMINER
ART UNIT 323